

MGS1000HV

60Hz/13.8kV

**POWER RATING (0.8 P.F.)
 STAND-BY 1060 kW**

**MODEL CODE
 61S-P623**



MGS1000HV with typical options

CONDITIONS & DEFINITIONS

Stand-by: Code: S

Applicable for supplying emergency power at varying load in the event of normal utility power interruption.
 Fuel stop power in accordance with ISO15550, ISO3046/1, JISB8002-1, DIN6271 and BS5514.

Conditions:

Engine ratings are based on SAE J1349 standard conditions and also apply at ISO3046/1, DIN6271 & BS5514 standard conditions.

Fuel rates: based on ASTM D975, BS2869 and on fuel oil of 35° API (16°C or 60° F) gravity having a LHV of 42,780 kJ/kg (18,390 Btu/lb.) when used at 29°C (85° F) and weighing 838.9 g/liter (7.001 lbs./U.S. gal.).

DIMENSION (Reference Data)

			STAND-BY
			1060 kW
Overall dimensions	L : Length	mm	5185
	W : Width	mm	2020
	H : Height	mm	2645
Total Weight (Dry)		kg	12300
Total Weight (Wet)		kg	12600

MGS SERIES DIESEL ENGINE: MITSUBISHI S12H-PTA-S

V-12, 4 stroke-cycle water-cooled, turbocharged and aftercooled

ENGINE SPECIFICATIONS & TECHNICAL DATA

Bore	mm	150
Stroke	mm	175
Displacement	L	37.1
Piston speed	m/sec.	10.5
Compression ratio		14
Lubricating oil capacity	L	200
Coolant capacity without radiator	L	100
Coolant pump external resistance	m water	5.0
Coolant pump flow rate	L/min	1450
Cooling fan airflow rate	m ³ /min	1800
Cooling fan air flow restriction	kPa	0.1
Ambient air temperature	°C	40
Allowable exhaust back pressure	kPa	6.0
Exhaust flange size (internal diameter)	mm	200

ENGINE OPERATING DATA

		STAND-BY
		1060 kW
Gross Engine Power*	kWm	1136
Brake mean effective pressure	MPa	2.1
Regenerative absorption	kW	108
Noise Level at 1 m (excluding: intake, exhaust & fan)	dB(A)	113
Fuel consumption load 100%*	L/hr.	290
Fuel consumption load 75%*	L/hr.	214
Combustion air inlet flow rate	m ³ /min	100
Exhaust gas flow rate	m ³ /min	262
Exhaust gas temperature	°C	510
Heat rejection to coolant	kW	722
Heat rejection to exhaust	kW	926
Heat rejection to atmosphere from engine	kW	87
Heat rejection to atmosphere from generator	kW	53

* WITH FAN basis.

Deration for engine

Altitude: 2.5% per 300m (1000ft) above 1,500m

Temperature: 2% per 5°C (9° F) above 40°C

ENGINE STANDARD EQUIPMENT

Aftercooler
 Turbocharger filter
 Structure steel base
 Crankcase breather
 Charging alternator
 Lubricating oil cooler
 Fuel filters, full flow paper element
 Fuel transfer pump, gear driven, plunger type
 Electronic type governor
 Jacket water heater
 Jacket water pump, gear driven
 Lubricating oil filter, full flow paper element
 Lubricating oil pump, gear driven
 Exhaust dry manifold
 Radiator, blower fan, fan drive
 Manual shutoff
 24V DC electric starting motor

MGS SERIES 7310 GENERATOR CONTROL PANEL

Type & Design

MGS standard 7310 programmable microprocessor control-automatic start/stop panel, generator breaker control, indicating the operational status and fault conditions; automatically shutting down the engine and indicating the engine failure by means of LCD display and LEDs on the front panel.

Controls & Monitoring

- ◆ Mode selection & start engine button with interlock key switch system
- ◆ Menu navigation button
- ◆ LCD display for: AC amperage-each phase and earth current, AC voltage-each phase and neutral, Frequency Hz, Operation hours run, Lub. Oil pressure, Cooling water temperature, Generator Load kW/kVA/kVar, Generator Load kWh/kVAh/kVarh
- ◆ Operation status LED indicators
- ◆ CB control buttons
- ◆ Mute/Lamp test button
- ◆ Voltage adjuster
- ◆ Speed adjuster
- ◆ Emergency stop pushbutton
- ◆ Provided 5 outputs for status as standard equipment (Programmable 8 outputs available as option)

Safety Shutdown Protection and LED Indicators

High engine temperature, Low oil pressure, Fail to start, Generator Over Speed/Frequency, Generator Under Speed/Frequency
 Generator High Voltage, Generator Low Voltage, Oil pressure sender circuit, Loss of Speed signal, Emergency stop,

Mounting

Fabricated cubicle mounted on individual bracket with anti-vibration isolator

Electrical Design

In accordance with BS EN 60950 Low Voltage Directive, BS EN 61006-2 and 61006-4 EMC Directive. The optional interface can provide real time diagnostic facilities.

Generator Control Panel Description

- 3 position operation mode control key switch (ACTIVE, PANEL LOCK, STOP/RESET)
 - Manual button
 - Auto button
 - CB open button (Manual only)
 - CB close button (Manual only)
 - Start engine button (Manual only)
 - Stop/Reset button (Manual only)
 - Mute/Lamp test button (Manual only)
- LCD display accessed by scroll pushbutton
 - Generator volts L1-N, L2-N, L3-N
 - Generator volts L1-L2, L2-L3, L3-L1
 - Generator amps L1, L2, L3
 - Generator Earth Current
 - Generator Frequency Hz
 - Engine speed RPM
 - Engine oil pressure (PSI & Bar)
 - Engine cooling water temperature (°C & °F)
 - Battery volts
 - Engine hours run
 - Generator Load kW, kVA, kVar
 - Generator Load kWh, kVAh, kVarh
 - Power Factor
 - Generator Phase Sequence
- Visual indicators on LCD display
 - Shutdown alarm
 - Warning alarm
 - High coolant temperature
 - Low oil pressure
 - Charge fail
 - Over-speed
 - Under-speed
 - Electrical trip
 - Fail to stop
 - Generator high current
 - Over voltage (AC)
 - Under voltage (AC)
 - Over voltage (DC)
 - Under voltage (DC)
 - Auxiliary indication
 - Auxiliary alarm (warning or shutdown)
 - Common alarm
 - Over frequency
 - Under frequency
- Visual indication alarm and automatically shutdown
 - High engine temperature
 - Low oil pressure
 - Fail to start
 - Over-speed
 - High voltage
 - Low voltage
 - Over frequency
 - Under frequency
 - Oil pressure sender open circuit
 - Loss of speed signal
 - High Crankcase internal pressure (MGS-C Continuous only)
 - Emergency Stop
- Operation status indicated by LED
 - Remote start present
 - Generator ready
 - Lubrication oil filter clogged
 - Electrical trip
- Pre-Programmed Starting Unit
 - Automatic start/stop sequence timing and delay systems configured via MS-Windows based software.

MGS SERIES AC GENERATOR MODEL: MG-KP623

Type & Design

MGS original design, double bearings, 4 pole, screen protected, selfexciting, self regulating and brushless with fully connected damper windings, salient pole rotors, A.C. exciter and rotating rectifier unit. Direct coupled to engine and regreaseable bearing, direct drive centrifugal blower.

With space heater.

Enclosure: Drip-proof IP22

Terminal box: Totally enclosed IP44

Winding System

Standard 6 wire winding is provided. All windings are formed wound and impregnated in vacuum pressure with a special epoxy resin.

Overspeed capability: 125% for 2 minutes

Insulation: Class 'F' of IEC

Temperature rise: 130°C (Stand-by)

Temperature rise: 105°C (Prime)

Voltage Regulator

Fully sealed, 3 phase RMS sensing AVR with built-in protection against sustained over-excitation. This de-excites the generator after a minimum of 5 seconds.

Voltage regulation: Less than +/- 0.5% from no load to full load at any power factor between 0.8 lagging and 1.0 allowing for a 4% engine speed variation

Voltage adjustment: +/- 6%

Wave form: Less than 5% deviation

Permanent Magnet Generator (PMG)

Electrically isolated from the main alternator stator windings powers AVR - sustaining approx. 250% of short circuit current at the AC generator output terminals for not more than 10 seconds by means of excitation voltage via AVR

Sensors

Temperature sensors are provided as follows.

Stator winding, 2 per each phase, PT100

Bearing, 1 per each bearing, PT100

Electrical Design

In accordance with BS5000 Part 3, VDE0530, UTE51100, NEMA MG1-22, CEMA, IEC34-1, CSA22.2, AS1359 and JEC2100.

Telephone Influence Factor (TIF): Less than 50

Telephone Harmonic factor (THF): Less than 2.5%

Radio interference: Suppression is in line with the provision of VDE Class G and N

Gen Set Option Features

- | | |
|---------------------------------------|---|
| ■ ENGINE | ■ GENERATOR |
| Air Cleaner, paper element dry type | Power Factor Regulator |
| Battery Kit | ■ CONTROL PANEL |
| Battery Charger | Diesel Generator Integrated Communication Synthesizer (DGICS-MII) |
| Anchor Bolts | Auxiliary Control Panel |
| ■ FUEL | Remote Monitor Interface |
| Fuel Day Service Tank | Temperature Meter for Winding & Bearing |
| ■ COOLING | ■ SWITCHGEAR |
| Heat Exchanger | Circuit Breaker VCB |
| Expansion Tank | Reverse Power Relay |
| Removal STD Radiator, Fan & Fan Drive | |
| ■ LUBRICATION | |
| Lub. Oil Priming Pump | |
| ■ EXHAUST | |
| Exhaust Silencer | |
| Exhaust Flexible Pipe | |



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Therefore specification and some materials will be changed without notice.
The International System of units (SI) is used in this publication.

